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POTENTIAL MANAGEMENT OPTIONS	LEGAL AUTHORITIES	INFORMATION NEEDS and /or INFORMATION AVAILABLE	R & D: ONGOING and R&D NEEDED	LIMITATIONS and CONSIDERATIONS				TIME-FRAME
				ECONOMIC IMPACTS ON SHIPPING INDUSTRY & PORT COMMUNITY	ENVIRONMENTAL IMPACTS	POTENTIAL BENEFITS to RIGHT WHALES	IMPLEMENTATION and OPERATING COSTS	
Designate shipping lanes, i.e., recommended or mandatory routes for port approaches.	Should seek IMO approval; domestic authority exists within 24 miles from coast.	<p>Need to assess existing traffic routing (from MSR).</p> <p>Determining the location of whales is essential. Focus aerial surveillance on designated traffic lanes</p> <p>Must evaluate potential expansion of critical habitat seaward and north to include Savannah harbor approaches.</p> <p>Right whales cannot be sighted at night and have been known to travel up to 24 miles in a 24-hour period when with calf.</p>	<p>Minimal R&D are needed to direct traffic to designated traffic lanes.</p> <p>Passive acoustics (listening for right whales) in shipping lanes should also be considered as part of a long-term management option. (IFAW, Cornell University and others are studying passive acoustic detection systems in Bay of Fundy and Great South Channel.)</p>	<p>Potential expansion of critical habitat seaward may force traffic into Gulf Stream, and could add several miles to approaches and travel time for southbound vessels.</p> <p>An economic impact analysis should be conducted prior to and in support of the initial rule-making process. May be an impact, real or perceived, for ports within critical habitat</p>	An environmental assessment should be conducted as part of rulemaking process and in support of a proposal to IMO.	<p>Will minimize vessel travel distances in critical habitat, reducing exposure. Surveillance can focus on a limited area.</p> <p>Passive acoustic detection has the potential of providing real-time information and addressing lack of information on right whale locations at night or inclement weather.</p>	<p>Designation of recommended routes would require charting and notification in Coast Pilot and other nautical publications. This is self-enforcing, and can be checked by the Coast Guard during their routine port state control boardings.</p> <p>Costs for acoustic detection are under study and will be considered in the December 2000 acoustics workshop.</p>	<p>May be implemented within two years following traffic routing assessment of MSR data and assessment of critical habitat.</p> <p>Acoustic detection systems are in the early stages of development. In December 2000 an acoustics workshop will be held to review R&D findings and recommend further R&D.</p>

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				ECONOMIC IMPACTS ON SHIPPING INDUSTRY & PORT COMMUNITY	ENVIRONMENTAL IMPACTS	POTENTIAL BENEFITS to RIGHT WHALES	IMPLEMENTATION and OPERATING COSTS	
Develop an emergency rulemaking process to impose restrictions on vessels should whales be sighted and / or detected in the vicinity of designated shipping lanes. Require that engines be ready for maneuvering.	NMFS can develop emergency rulemaking regulations under MMPA/ESA. Should seek IMO approval.	<p>Need to assess existing traffic routing (from MSR).</p> <p>Determining the location of whales is essential. Focus aerial surveillance on designated traffic lanes.</p> <p>Must evaluate potential expansion of critical habitat seaward and north to include Savannah harbor approaches.</p> <p>Right whales cannot be sighted at night and have been known to travel up to 24 miles in a 24-hour period when with calf.</p>	Passive acoustics (listening for right whales) in shipping lanes should also be considered as part of a long-term management option. (IFAW, Cornell University and others are studying passive acoustic detection systems in Bay of Fundy and Great South Channel.)	<p>May be an impact, real or perceived, for ports within critical habitat.</p> <p>An economic impact analysis should be conducted prior to and in support of the initial rulemaking process.</p> <p>Potential economic impacts include: (to be developed)</p>	An environmental assessment should be conducted as part of the initial rulemaking process and in support of a proposal to IMO.	<p>Slowing vessels may allow sufficient time for both a whale and ship to avoid a strike</p> <p>Passive acoustic detection has the potential of providing real-time information and addressing lack of information on right whale locations at night or inclement weather.</p> <p>Increasing the vessels' ability to maneuver will reduce the risk of collision</p>	<p>Surveillance is key to reactive management. To issue an emergency rule, a consultative process with industry, scientists, state agencies and conservation groups must be established.</p> <p>Costs for passive acoustic detection are under study and will be considered in the December 2000 acoustics workshop.</p>	<p>NMFS can develop emergency rulemaking regulations within 18 months. Within 24 nm, the Coast Guard has the authority to regulate traffic on an emergency basis. NMFS should seek an understanding with the Coast Guard. Economic and environmental impacts must be assessed as part of the initial rulemaking process.</p> <p>Acoustic detection systems are in the early stages of development. In December 2000 an acoustics workshop will be held to review R&D findings and recommend further R&D.</p>

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POTENTIAL MANAGEMENT OPTIONS	LEGAL AUTHORITIES	INFORMATION NEEDS and /or INFORMATION AVAILABLE	R & D: ONGOING and R&D NEEDED	LIMITATIONS and CONSIDERATIONS				TIME-FRAME
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Develop / install a sonar detector capable of identifying right whales in the path of a vessel for use on a designated escort vessel, or on a transiting vessel.		A report by the Interagency Working Group on Ocean Noise on active acoustics indicates this approach has limited potential.	Being tested with NEAq on whale watch vessels. NMFS is conducting R&D on an active acoustics detection system.	Costs to fit an escort vessel to be determined. Liability would be a concern for the escort vessel. Costs to retrofit for all transiting vessels need to be determined.	Several conservation groups oppose active acoustics, as the impact of adding more noise into the environment is a concern. An environmental assessment should be conducted prior to field testing as part of a management scheme.	Hoped to be able to deter whales from the shipping lanes and thereby eliminate potential for ship-strikes.	To be determined.	Unknown at this time.
Designate critical habitat as an Area to be Avoided to keep north-south traffic offshore. This could be seasonal.	Should seek IMO approval; domestic authority exists (regulated navigation area) within 24 miles from coast.	Should evaluate potential expansion of critical habitat seaward and north to include Savannah and / or Charleston harbors approaches. Need to assess traffic routing and volume (from MSR), aerial surveys, and other port statistics.		An economist specializing in inter-modal transportation can develop a per-ship estimate of additional travel times. May have large impact on coast-wise southbound vessels if they may buck Gulf Stream.	An environmental assessment should be conducted as part of the initial rulemaking process and in support of a proposal to IMO.	Will minimize vessel travel distances and number of vessels in critical habitat, reducing exposure. Surveillance can focus on a limited area.	Designation of an Area to be Avoided would require charting and notification in Coast Pilot and other nautical publications. This is self-enforcing, and can be checked by the Coast Guard during their routine port state control boardings.	The seaward extension of an Area to be Avoided would define the legal avenue. In either case, the process should take 2-3 years. However, this might be better to follow an assessment of the seaward extension of the critical habitat. The two processes could be run in parallel.

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<p><u>Two speed restriction options:</u></p> <p>1) Restrict inbound and outbound traffic to “slow safe speed.” Require that engines be ready for maneuvering.</p> <p>or</p> <p>2) Impose blanket speed restrictions (13 knots or less) to encompass the critical habitat and waters east of the critical habitat with water temperatures below 20° C. This would also apply to north-south traffic.</p>	<p>For both options, should seek IMO approval; domestic authority exists within 24 miles from coast</p>	<p>Most inbound traffic slows to pick up pilot at “A” buoy. Outbound traffic speeds up after dropping off pilot. Need to survey vessels to assess current vessel speeds through critical habitat.</p> <p>Need to assess traffic routing and volume (from MSR) and port statistics.</p> <p>Additional research may clarify the relative merits of reducing speed as a means of reducing risk.</p>	<p>Whale behavior around ships, in particular of mother calf pairs is unknown. NEAq and NMFS are studying.</p> <p>Large-scale movements of mother/calf pairs are being studied by NEAq and NMFS.</p> <p>Additional information is needed on right whale/vessel interactions as a function of speed, vessel type and in depth restricted waters (e.g. the shipping lanes). Computer simulation models are being developed.</p>	<p>An economist specializing in inter-modal transportation can develop a per-ship estimate of the costs of a speed restriction for in bound or outbound vessel and / or blanket speed restrictions for vessels operating in the critical habitat.</p> <p>Potential economic impacts include: (to be developed)</p>	<p>An environmental assessment should be conducted as part of rulemaking process and in support of a proposal to IMO for either option.</p>	<p>Slowing vessels may allow sufficient time for both a whale and ship to avoid a strike, in particular when right whales are known to be present and the vessel is alert to their presence.</p>	<p>Designation of restricted speed regulated navigation areas would require charting and notification in Coast Pilot and other nautical publications. This is self-enforcing, and can be checked by the Coast Guard during their routine port state control boardings.</p>	<p>Management options for speed restrictions may be implemented within two years. This would follow an assessment of the seaward extension of the critical habitat. The two processes could be run in parallel.</p>